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SECOND NATIONAL TRIAL INSPECTION

I. INTRODUCTION

At the summer session in 1988, the Ad hoc Committee on Chemical Weapons proposed that States participating in the negotiations should conduct national trial inspections for the purpose of determining whether the verification provisions contained in the "rolling text" made it possible to ascertain that chemical industry facilities subject to declaration were not being used for prohibited purposes.

An initial trial inspection carried out in France in March 1989 was reported on in document CD/913 (CD/CW/WP.240), dated 11 April 1989, the conclusions whereof are reproduced below (see annex). A second inspection of the same kind was found necessary to confirm and refine those conclusions.

The present report describes the course of, and the lessons drawn from, that new exercise.

II. SUMMARY DESCRIPTION

1. Type of inspection

This second national trial inspection was carried out at a multi-purpose industrial site in accordance with the provisions of article VI of the current "rolling text" of the convention (CD/952, of 18 August 1989). Its purpose was to verify, by means of the routine systematic on-site inspection procedure, that the initial and annual declarations concerning a schedule [2] chemical corresponded to the output of the workshops concerned and that the chemical was not being used or diverted for prohibited purposes.

2. Type of facility

The inspection took place in a specific facility comprising two shops, one of which was multi-purpose. This facility comprises part of a medium-sized industrial site that engages in other chemical manufacturing operations using the same raw materials as the manufacturing activity inspected.

3. Type of chemical

The chemical in question belongs neither in schedule [1] nor in schedule [2]. It was chosen on the basis of the following three criteria:

Its manufacture involves widely used techniques similar to those used to make schedule [2] chemicals;

It undergoes partial processing at the facility. As the by-product so obtained has characteristics close to those of the chemical from which it derives, the decision was taken that it too should be subjected to inspection;

Several manufacturing processes are or have been employed: the situation at the time of the initial declaration was that the chemical and the by-product were made in the two specific shops concerned by the inspection, one of which operated continuously and the other in batch mode, and that one of the two substances was made in another shop, as a by-product of another manufacturing process that was not subject to declaration. That other manufacturing process had been definitively halted by the time of the annual declaration and the inspection.

It should be added that the manufacture of these two products requires the same raw materials stored on-site as other manufacturing activities, and that it consumes only a small proportion of them.

4. Composition of the inspection team

The inspection team was composed of three chemistry specialists, one of whom had already participated in the first trial national inspection:

A university-trained inspector of facilities classified for environmental protection purposes;

A chemical engineer, doctor of science and specialist in organic synthesis, belonging to a research centre;

An engineer from the chemical industry with long experience in research, development and production.

The same team carried out the initial visit.

An ad hoc national authority, observers from various ministries or civil service departments, a representative of the Union of Chemical Industries and representatives of the company owning the facility, participated in the whole of the exercise.

5. Implementation of the inspection procedure

The routine inspection procedure was implemented in accordance with the provisions of annex 2 to article VI of the current draft convention.

(a) Declarations

Pursuant to those provisions, the company's head office gave all the information that was to be included in the initial and annual declarations to the ad hoc national authority, which transmitted it to the inspection team.

The company declared that it was unable to answer with certainty the question whether the facility could be used to produce a schedule [1] chemical.

(b) Initial visit

This lasted four half-days spread over three days, from 10 to 12 October 1989.

(c) Notification of inspection

The ad hoc national authority gave the company 48 hours notice of the inspection.

(d) Inspection

The inspection was carried out on 8 and 9 November 1989 and lasted two half-days.

III. EVALUATION

1. Initial and annual declarations

Generally speaking, the relevant provisions of annex 2 to article VI proved well suited to the requirements of the inspection.

The company management supplied the information required to be given in the initial and annual declarations, making a distinction between:

Confidential information (for example, manufacturing and raw material storage capacities, output levels, details of employment and of sales by country for 1988, not including the names of customers and economic data);

Other information (for example, identification and physico-chemical characteristics of the products, general information on their uses, principles of the manufacturing processes employed, product specifications, marketing documents, safety instructions and documents for general distribution describing the industrial site).

The question arose of how precise the information contained in the initial and annual declarations should be in order to ensure that the initial visit and the inspection achieved their purpose and safeguard the principle of confidentiality.

For this reason, it seemed clear that the final drafting of the declarations should be the subject of close dialogue between the national authority and the industry before they were despatched to the international technical secretariat.

2. Initial visit

The initial visit lasted four half-days, divided up as follows:

Two half-days for familiarization with the site, during which the management provided information on the factory as a whole. The inspectors visited the facilities and collected information on the workshops and on the processes for manufacturing the products in question;

Two half-days for exchanges of view between the team of inspectors, the ad hoc national authority, the representatives of the manufacturer and the observers. These exchanges made it possible to spell out the main points of the specific facility agreement.

The initial visit constitutes a first contact of vital importance, for it enables the inspectors to familiarize themselves with the facilities subject to verification and thereby, in agreement with the national authority and the manufacturer, to determine the nature and the limits of the information needed for the performance of their task. For example, on the occasion of the visit to the factory's laboratory the inspectors were able to assess the types of analysis they would be able to carry out there.

In addition, a survey of the raw material stores showed that, in the absence of specific metering instruments which provided clear identification of the uses of raw materials for the manufacture of the products in question, as distinct from their other uses on the site, the inspectors would need access to certain accounting documents and materials records concerning products not subject to inspection.

Among the conclusions drawn on the occasion of the initial visit, mention should be made of the following:

The value of the international organization's drawing up terms of reference for the initial visit, based, perhaps, on pre-established guidelines, so as to define more clearly the rights and obligations of each of the parties;

The decisive role of the use of accounting documents both in the preparations for and in the conduct of the inspection. In this respect, the participants expressed doubts about the meaningfulness of a routine inspection conducted without access to accounting documents; in cases of double book-keeping; or where some or all of these documents are not presented.

They wondered whether it would be worth while including in the convention a provision whereby States parties would oblige companies manufacturing products subject to verification to adopt a standardized materials and utility management system.

(a) Duration

For one product and one by-product that are obtained by a relatively simple process, as was the case here, two days' work seems to be the minimum required for the compilation of a reference dossier and the drawing up of a specific facility agreement.

Should the chemical process be more complex, it would probably be necessary to provide for a longer initial visit.

(b) Specific facility agreement

The specific facility agreement was drafted after the initial visit on the basis of the facility attachment found in the "rolling text", which seemed to fit the case. A more detailed statement should, however, be made therein of the rights of the inspection team, especially as regards examination of the equipment in the facilities concerned.

Generally speaking, it is clear that the specific agreement will have to be very detailed and state unambiguously the services the inspectors will be entitled to expect and the constraints to which they will have to submit, particularly as regards:

Arrangements for travel within the site;

Opportunities for taking and analysing samples;

The rules of confidentiality (cf. paras. 2 (c) and 4).

(c) Confidentiality

In advance of this exercise the company requested all the participants who did not belong to its staff to sign a personal undertaking to respect the confidentiality of the information collected during the initial visit and the inspection.

This exercise reconfirms the need:

To limit the communication of information in strict accordance with the "need to know";

To define as precisely as possible the nature of the information that can be taken out of the facility without detriment to the interests of the enterprise.

3. Drawing up and content of the inspection mandate and the notification of inspection

The inspection mandate was drawn up on the basis of the relevant provisions of article VI of the draft convention. It contained the following information:

The address of the site containing the facility subject to verification;

The composition of the inspection team;

The purpose of the mission, defined as follows:

(a) Verification of:

The non-production by the designated facilities of products in schedule [1];

Consistency with the initial and annual declarations;

The non-diversion of the products in question for purposes prohibited by the convention;

(b) The drafting of a report indicating whether the relevant provisions of the convention are being observed;

A restatement of the modalities of the inspection in the light of the specific agreement relating to the facilities concerned;

A description of the role of the national authority in the process.

The notification of inspection was communicated, with two working days' advance notice, to:

The head office of the company operating the site;

The management of the site.

The period of notice was felt to be sufficient in the case in question.

The notification indicated the dates of arrival and departure and the composition of the inspection team.

These two documents were, intentionally, concisely worded. It was not felt necessary to mention in the notification the rights and duties of the inspectors or the characteristics of the inspection, since those matters had already been dealt with in the specific facility agreement and in the inspection mandate.

4. Inspection

(a) Opening conference

In view of the brevity of the interval between the initial visit and the inspection proper, it was not felt necessary to hold a very detailed opening conference, especially as the composition of the team of inspectors had not been changed.

The national authority, whose presence was deemed indispensable, reiterated the objective of the inspection, read out the specific facility agreement and stressed the need to respect the confidentiality of information that would be accessible.

The inspectors described their mandate, presented their air sampling equipment and described how the inspection would be carried out.

The management of the site handed over to the inspectors the reference dossier compiled on the occasion of the initial visit and indicated:

The safety and security rules in force on the site;

The areas that would be accessible in the context of the inspection;

The site staff who were authorized to communicate with the inspectors;

The rules the inspectors would have to observe when communicating with persons outside the site, and when taking notes.

(b) Escort and visit

In accordance with the specific facility agreement and the inspection mandate:

A designated representative of the company permanently accompanied the inspection team, which availed itself, as necessary, of the technical assistance provided by the management of the site;

The inspection team had access only to the facilities for manufacturing and storing the products concerned, and to certain buildings such as the conference room, the analytical laboratory and the sick-bay (see para. 4 (c));

The inspection team was unable to move about on the site outside a previously determined itinerary.

(c) Records: planned for, useful or necessary

The inspectors had at their disposal:

The accounting records and operating returns for the declared products only;

The sales records for the declared products;

The maintenance records for the facility;

The operating logs for the facility.

In view of the confidentiality of this information, the above documents could not be taken away from the site; that was also the case for the notebooks on the basis of which the inspectors drew up their report. The information that was not essential for the purposes of the inspection - for example, on customers, purchase prices of raw materials and sales prices of finished products - had been concealed in the accounting records.

However, in the absence of apparatus for measuring the consumption of the raw materials used both in the facility inspected and in other manufacturing shops on the site, the manufacturer furnished, on request, a number of

accounting vouchers concerning the various other uses of the raw materials. In the context of a normal routine inspection conducted on the basis of the current "rolling text", such information might not have been provided, especially as some of the other uses relate to a subsidiary in which the company owning the inspected site does not have a majority holding.

In the case studied, one of the raw materials being common to the manufacture of several other substances in larger amounts, the normal imprecision in the measurement of mass flows could have led to considerable uncertainty as to the quantity of that raw material actually used for the manufacturing operation inspected. In that event, the possibility of deliberately under-evaluated production could not have been ruled out. In fact, the uncertainty was dispelled by means of a check of the uses of the other raw materials employed in the process.

The question arises, therefore, whether such complementary or indirect checks will always be possible. On a more complex site, for example, where other raw materials too might have had multiple uses, the uncertainty could not have been dispelled, unless the inspectors had had access to documents that are normally unavailable for the inspection.

Another question that arose was whether, bearing in mind the principle of medical secrecy, the inspectors should be granted the right to visit the site sick-bay and consult the treatment records. Such a visit might also have enabled them to verify the existence of special medical equipment.

(d) Inspection of areas, equipment and operation procedures

The inspectors went into each of the manufacturing shops and into the storage areas connected with the facility. They were able to establish, thanks in particular to photographs taken with an instant camera during the initial visit and kept on the site, that no change had apparently been made to any part of the facility.

They did not judge the facility to be technically suited to the manufacture of products listed in schedule [1], for the following reasons:

The safety equipment is not adequate for that purpose;

Access to the shops is not controlled;

One of the shops is in the open air.

These remarks only apply, of course, to the facility described in the specific agreement.

At the request of the inspection team, the site officials took samples of products at the sampling points normally used for industrial monitoring. These samples were analysed in the presence of an inspector by the staff employed in the site laboratory and compared with a reference sample brought by the team of inspectors.

With a view to ascertaining that schedule [1] chemicals were not being made, the inspectors had provided themselves with a CW agent detection kit and air sampling equipment.

(e) Analysis of chemical samples and air samples

The requests made by the inspectors for analysis of the samples by the site laboratory could be fulfilled only subject to the following limitations:

Available gaps in the laboratory's schedule of work;

Use of the analytical methodology customarily used by the laboratory;

Use only of the equipment available on the spot, which is designed solely for regular and customary checks on production.

The CW agent detection kit, which as far as sensitivity is concerned is designed for battlefield conditions, proved unsuited to the needs of inspection in an industrial environment.

The site management gave its agreement for off-site analysis of the air samples, on condition that the results were communicated to it. The analysis carried out off-site did not reveal the presence in the facility of any product listed in schedule [1].

It would be helpful if a duplicate of each of the samples was kept under seal on the site so that a second evaluation could be undertaken if necessary.

(f) Inspectors' report

The detailed technical report drawn up by the inspectors was kept on the site in readiness for a possible subsequent inspection. The report intended for the international technical secretariat merely referred to consistency with the initial and annual declarations and compliance with the convention.

(g) Closing conference

A closing conference was held at the end of the inspection. The participants examined the detailed technical report and commented on the course of the exercise and on the conclusions to be drawn from it.

(h) Difficulties arising during the inspection

The inspection revealed no irregularities. It did, however, show that as verification procedures and monitoring techniques now stand, it was not always possible to gain an accurate idea of the limits of this type of inspection and so assess its effectiveness.

The reliability of the inspection depends to a large degree on:

The quality and credibility of the accounting documents supplied to the inspectors;

The suitability of the detection and identification equipment for an industrial environment;

The restrictions imposed on the inspectors' movements during the initial visit and during the inspection.

(i) Duration

Two half-days sufficed for the inspection because of the small size of the facility and the simplicity of the process used to manufacture the products in question.

As a general rule, it seems difficult to foresee the duration of inspections, particularly prior to the initial visit. The duration will depend above all on the complexity of the manufacturing process that is subject to verification. Account must also be taken of the constraints imposed by the manufacturer.

5. TECHNICAL FACILITIES FOR THE INSPECTION

(a) Preparation of a technical dossier on the chemicals involved

Ideally, scientific and technical documentation on the chemical or chemicals subject to verification will already have been made available to the inspection team. This documentation might be prepared by the technical secretariat following the initial declaration, drawing on appropriate data bases.

(b) Development of mobile analytical equipment

Using only the laboratory facilities available at the site may prove less than truly satisfactory, since it would mean restricting the inspection on the basis of the scientific equipment existing on the spot, which may be very limited in the case of small sites.

Bearing in mind the restrictions mentioned above (cf. II.4(e)) regarding the use of the analytical laboratory on the industrial site, it would appear desirable to investigate the idea of appropriate mobile equipment, standardized and acceptable to the chemical industry, designed to detect and identify chemicals on schedules [1] and [2], and complying with applicable security standards on the inspected sites.

6. IMPACT AND COSTS OF THE INSPECTION PROCESS

For the company the cost of the routine inspection was FF 100,000, based on the following company evaluation:

Two persons full-time (engineer-hours) for the duration of the initial visit and the inspection;

Analyses (two only in the present case);

Collating of various documents;

Travel for one person from company headquarters to the site on the occasion of the initial visit and the inspection.

For the ad hoc national authority, observers included, the cost is of the same order.

No production losses were observed during the inspection. The costs to be borne by the company would clearly be much greater if the inspection required a halt or a reduction in production, which was not the case during this inspection.

* * *

CONCLUSIONS

The conclusions drawn from this second trial inspection may be summarized as follows:

1. The régime of systematic routine on-site inspections is worth while only in so far as it allows checks of the accuracy of the declarations made by industry through the national authority. In this it contains a dissuasive element which should be invoked with care. However, it may be of limited effectiveness in practice, depending in particular on the reliability and the nature of the information or data supplied.

2. Preservation of confidentiality is vital - in particular the most confidential information collected during the initial visit and the inspection must be kept on the inspected site, and the information supplied must be strictly limited in accordance with the need to know.

3. The national authority is called upon to play a major role at all stages in the verification process (declarations, initial visit, inspection, etc.). Specifically, for the purposes of the initial declaration it must help the manufacturer to determine whether schedule [1] chemicals may be manufactured on the site.

4. A detailed initial visit to the facility is of decisive importance for the proper conduct of the inspection. As far as possible, the subsequent inspection should be carried out by the same team of inspectors.

5. Plants manufacturing schedule [2] chemicals should be placed under a clear obligation to use a standardized materials and utility management system.

6. There is a need to study and then develop detection, identification and measurement equipment which is reliable and specifically adapted for inspection in an industrial environment, in the form of mobile laboratories where appropriate.

7. The composition of the inspection team is of great importance. In particular, the availability of a wide range of expertise will be conducive to effective verification. Nevertheless, the team responsible for verification should be limited to a reasonable number of inspectors, if only for security reasons.

ANNEX

Extract from CD/913 - CD/CW/WP.240 of 11 April 1989

IV. CONCLUSIONS

1. It is essential to prepare a standard multilingual glossary, particularly for technical terms.

2. The specific agreement for the facility is vital for facilitating inspections. It is determined by the standard of the initial visit. It includes confidential elements to be kept within the plant.

3. Analytical accounting records of operations are an essential item of information in the inspection. Consequently, efforts should be made to ensure that all the facilities subject to inspection are in a position to provide such records.

4. In selecting and training the inspectors, account should be taken of the substantial differences which can exist in the structure of production systems from one country to another.

5. The very delicate question of parallel clandestine production on the same site, but in a separate location from the facility subject to monitoring, was not dealt with in this trial inspection, but should be given special in-depth consideration.

* * *

Finally, it seems clear that a single trial inspection is not sufficient to take stock of the many problems posed by the holding of a routine inspection, and a further national trial inspection is to be held.